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Should the Social Security Investment Commission Engage in Market Making?

Final Report

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Dealer Market
Returns and Risks
Liquidity
Transactions Costs
Execution
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Pricing Efficiency

Abstract

The issue addressed here is whether the SSIC should engage in market making. A bigger question and one that needs to be addressed first is whether the Amman Stock Exchange (ASE) should introduce the regulatory environment that permits market making. Given that the purpose of market making is to increase market liquidity and reduce volatility for selected stocks, market making appears to be a desirable goal. Still, it is not without certain costs, the most important of which would be that of regulation. Assuming that the ASE views market making as a desirable activity and, therefore, provides the regulatory environment within which a market maker would operate, the issue then becomes whether the SSIC should be the first entity in Jordan to take on this challenge.

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Executive Summary

The main differences between a dealer market and a specialist market are competition and the degree of regulation. A dealer market thrives on competition whereas a specialist does not. Competition in a dealer system would, therefore, act as a regulator to a large degree meaning that a dealer system would not require as much regulation as a specialist system. The conclusion from this analysis is that the system the ASE ultimately adopts will have a major impact on how market makers operate and the role, if any, of the SSIC in that system.

The clear conclusion is that the SSIC or, for that matter, any participating entity would have to meet certain criteria in order to engage in market making. Adherence to strict rules and regulations, development and operation of inventory control systems, and employment of highly skilled personnel who understand the market mechanism are but a few of the criteria. My concern is not that the SSIC could not meet these criteria; in fact, I feel confident that it could. My concern, however, is the amount of resources that the SSIC would have to devote to the endeavor. In the process of developing requisite systems and training its personnel, the SSIC would take a chance of being distracted from it primary purpose of managing the public's money for the benefit of current and future retirees. The risk/return principles of operating a market making business are quite different from the risk/return principles of managing a portfolio.

An additional concern I have is that of the SSIC, a public institution, engaging in and competing with private enterprises. The dealer system requires competition that, presumably, would come from businesses in the private sector such as brokerage firms and banks. Moreover, if the ASE were to opt for a market making system, it would likely select some form of a dealer system due to the heavy responsibilities of creating and enforcing regulations required of the specialist system. But even if the ASE were to adopt either the specialist or hybrid system, it would not be appropriate for the SSIC to act as the sole specialist for every applicable stock due to the magnitude of such an undertaking.

As a result of this analysis, I do not believe that the SSIC should engage in market making. Even though I don't believe that it is appropriate for the SSIC to engage in market making, I do believe that the concept of market making has serious merit and requires further investigation. If the ASE is to grow and mature, market making has a place in making this happen. A properly instituted market making system would lead to reduced transaction costs, speedier execution of trades, and gains in liquidity. Tighter bid-ask spreads, higher volumes, and greater pricing efficiency are ultimate goals. In addition, a successful market making system would lead to more investor activity that, in turn, would lead to a greater infusion of capital into IPOs and secondary issues. Cash-strapped companies in need of growth capital would look more to the equity market as a source of funds to be used for building new plants and purchasing new equipment than they currently are doing. As companies grow, they would employ more human capital, which is a major problem in Jordan at this time. In short, market making is a needed step in the development of Jordan's overall economic system.

I. Introduction

The issue addressed here is whether the SSIC should engage in market making. A bigger question and one that needs to be addressed first is whether the Amman Stock Exchange (ASE) should introduce the regulatory environment that permits market making. Given that the purpose of market making is to increase market liquidity and reduce volatility for selected stocks, market making appears to be a desirable goal. Still, it is not without certain costs, the most important of which would be that of regulation. Assuming that the ASE views market making as a desirable activity and, therefore, provides the regulatory environment within which a market maker would operate, the issue then becomes whether the SSIC should be the first entity in Jordan to take on this challenge.

Section II presents an overview of the order-driven system currently in use on the Amman Stock Exchange. Section III presents an assessment of two Market Making (MM) models—the NASDAQ dealer system, and the NYSE specialist system—and analyzes how each model operates. Section IV presents a discussion of the returns and risks to market making, and Section V presents a summary of important points of the paper and conclusions of the analysis including my recommendation regarding the SSIC’s possible involvement in market making. I conclude that the SSIC should not engage in market making.

II. Trading Systems of a Stock Exchange

There are three basic trading systems that exist to facilitate the trading of securities on a Stock Exchange, (A) Order-Driven System; (B) Quote-Driven (Market Making) System, and (C) Hybrid System. The present system being used on the Amman Stock Exchange is an Order-driven System. In this system, the flow of orders from investors drives the market. In a Quote-driven system, which is also known as a MM system, investor orders are routed to and executed against a market maker’s quotes. The MM takes an opposite side of the trade to the investor; either buying or selling shares from his book.[1] A market maker’s revenues will principally arise from the spread between the bid and ask prices.

[1] http://www.securities.com/Public/Public98/sebi/SEBI/press/99marketm.html.

Order-Driven System

In an order-driven market such as the Amman Stock Exchange, the flow of orders from investors drives the market. Order execution to buy and sell is matched automatically; an order book of unexecuted orders is maintained, and the list of buy and sell orders is displayed on an electronic screen in real time.

Advantages of an Order-Driven System

The major advantage is transparency. The order queue is visible to the whole market on an electronic board. Only bona fide orders are reflected in the queue so that the queue represents real demand for shares. Execution is objective in accordance with price and time priority. Executed trades are posted quickly for all to observe. In this system, human intervention is minimized, which makes the system cheaper to operate especially in the case of a large volume of small orders. The lack of human intervention also reduces the possibility of malpractice that, in turn, reduces the need for complex rules and regulation.

Disadvantages of an Order-Driven System

Investors are reluctant to place large orders for fear of causing price volatility before the trade is executed. As a consequence, some large trades may be driven off the market and negotiated individually by brokers over the counter. In addition, an order-driven market is not adept at increasing interest in small, relatively inactive shares. Depending on market conditions, even large stocks can experience a lack of liquidity, as investors are reluctant to enter the market for fear of not being able to exit. Lastly, transaction costs (explicit and implicit) are likely higher due to wider bid-ask spreads.

Quote-Driven (Market Making) System

The United States Securities Exchange Act of 1934 defines a market maker as “any specialist permitted to act as a dealer, any dealer acting in the capacity of a block position, and any dealer who, with respect to a security, holds himself out (by entering quotations in an inter-dealer communications systems or otherwise) as being willing to buy and sell such security for his own account on a regular or continuous basis.” The SEC later expanded this definition to include: “a dealer who, with respect to a particular security, (i) regularly publishes bona fide, competitive bid and offer quotations in a recognized inter-dealer quotations system; or (ii) furnishes bona fide competitive bid and offer quotations on request; and

(iii) is ready, willing, and able to effect transactions in reasonable quantities at his quoted prices with other brokers and dealers."

Advantages of a Quote-Driven System

The introduction of market makers into the Jordanian market could infuse a measure of liquidity into the market, reduce transaction costs, increase the speed of executing trades, and generally reduce price volatility by maintaining an orderly and fair market. In addition, a market maker who specializes in a company's shares would have a strong incentive to obtain information about the company and use that information to produce tighter quotes than typically would be possible in an order driven market. Regulation in the presence of competition is reduced relative to that of a specialist system but more than in the case of an order-driven system.

Disadvantages of a Quote-Driven System

A MM system requires the entity making markets to hold inventories of the stocks in which it makes markets. The MM must, therefore, have the financial ability to carry such inventories. The risk of buying a stock and placing it in inventory exposes the MM to risk especially when the inventory becomes large. In an order-driven market, inventory risk is spread over many investors with each one holding small amounts of a particular stock. MMs require compensation for services provided that tends to increase trading costs for low-volume shares. MMs also face certain conflicts of interest even in the presence of competition. MMs may collude, fix prices or avoid competition with each other as has been the case in certain large, well-developed markets such as the US and London.

Hybrid System

Some exchanges use a hybrid system that combines elements of both an order-driven system with those of a quote-driven system. A good example of a hybrid system is the London Stock Exchange (LSE). The top 100 market cap stocks on the LSE, which are the most heavily traded securities, follow an order-driven system while the remaining stocks follow a quote driven-system with designated market makers providing two-way quotes on a continuous basis. Market makers generate liquidity for the small-cap segment of the market. In this hybrid system, the assumption is that the heavily traded stocks are already liquid and don't need any additional help from a MM.

Most developed markets follow some form of market making in order to enhance trading liquidity and mitigate price volatility especially in smaller, less active stocks. While the specifics of each market are somewhat different, the basic concept of market making is constant.

III. Market Making Systems

MM itself can be divided into two different systems:[2] (i) a Dealer market such as NASDAQ; and (ii) an Auction Market such as NYSE specialist market. The main difference between the two is competition. A dealer market has numerous market makers for each listed security on the exchange that engage in competition in their price quotations. A specialist market has a monopoly in the security that he makes a market. Whether operating as a NASDAQ-type dealer or an auction-type specialist, a MM provides a great service to the market through:[3]

- Price discovery—a dynamic process of finding the unobservable equilibrium price that balances supply for and demand of a particular stock. Locating an equilibrium price is not a simple matter. Accuracy of price discovery depends on the rules, systems, and protocols that determine how orders are entered and translated into trades. It also depends on the trading behavior of market participants.
- Liquidity—in the ideal world, a liquid stock is one that can be traded immediately at its equilibrium price. Liquidity encourages investors to enter and exit the market with ease knowing that they will receive fair treatment in the process. A liquid market has several characteristics: (1) breadth where orders on the book exist at an array of prices above and below the current trading price, (2) depth where orders are of large size, and (3) resiliency where price changes due to temporary order imbalances quickly attract new orders to the market, thereby restoring reasonable prices. Liquidity also means frequent trading.
- Immediacy—the rapid execution of customer orders. Here, the MM provides a means for allowing buyers and sellers to find each other and to make a trade. In this way, the MM is similar to a used car salesman who, as an intermediary, establishes a place of business where buyers and sellers can find each other, and where the intermediary can hold a car for the seller until the buyer arrives.

[2] The NASDAQ handbook, Probus Publishing Company, 1992, Page 224.
[3] Schwartz, Robert A., Equity Markets: Structure, Trading, and Performance, Harper & Row, Publishers, 1988, Page 389, and Slide presentation,

Characteristics of NASDAQ Market Makers (Dealers)[4]

A firm that maintains a bid and offer price in a given security by standing ready to buy or sell at publicly quoted prices is a dealer. The NASDAQ Stock Market is a decentralized network of competitive Market Makers. Market Makers process orders for their own customers, and for other NASD broker/dealers; all NASD securities are traded through Market Maker firms. Market Makers also buy securities from issuers for resale to customers or other broker/dealers. About 10 percent of NASD firms are Market Makers; a broker/dealer may become a Market Maker if the firm meets capitalization standards established by NASD. NASDAQ Market Makers are securities firms that use their own capital to buy and maintain an inventory in a specific company's stock. When a MM receives an investor's order to buy shares in a particular stock, it sells those shares to the customer from its existing inventory.

Before committing capital to a market-making position in a stock, a typical firm will create a stock selection committee. The committee usually includes representatives from research, trading, and sales. The analyst assesses a stock objectively, for its intrinsic investment merit; the trader provides information as to the availability or liquidity of the issue, and also with respect to the quality and the depth of commitment of other firms already making a market in the stock; and the sales staff offer their judgments as to whether the issue will appeal to the individual and institutional customers of the firm.

Market-making firms must be members of the National Association of Securities Dealers, Inc. (NASD®). As MMs, firms must meet special capital requirements related to the number of securities in which they make markets. MMs cannot withdraw from a security without permission from NASDAQ. If a MM withdraws without permission, it is barred for 20 days from resuming trading the security. These requirements provide depth and continuity of support to NASDAQ® stocks.

While MMs must register to "make a market" in a specific company's stock, there is no limit on the number of MMs that can represent the stock of a single company. In fact, some of NASDAQ's largest companies have more than 60 MMs, and there are, on average, 11 MMs for every NASDAQ-listed security. The best quotations in NASDAQ issues are displayed to investors continually through nearly 350,000 terminals in 60 countries.

Market making firms include the world's largest and best-capitalized securities firms. Today, about 550 broker/dealer firms make markets in NASDAQ-listed securities. In addition to large, full-service firms with offices throughout the world, MMs also include regional firms making 200 to 400 markets each.

[4] Ref: NASDAQnews.com.

The NASDAQ Stock Market is unique in its open, displayed competition between MMs. State-of-the-art technology also enables MMs to recognize and react to the constantly changing prices that result from the purchase and sale of securities. New Order Handling Rules allow customers' limit orders to affect the price and size of quotes displayed by MMs. The rules also require that the best MM orders shown on private trading systems must also be displayed in the public quote.

To qualify as a MM, a broker/dealer is subject to stringent rules and regulations, the most important being:

- Guaranteed execution of each order at the best price available.
- Commitment to buy and sell the securities in which they make markets.
- Agreement to report publicly the price and volume of each transaction within 90 seconds.

NASDAQ Dealer regulations [5]

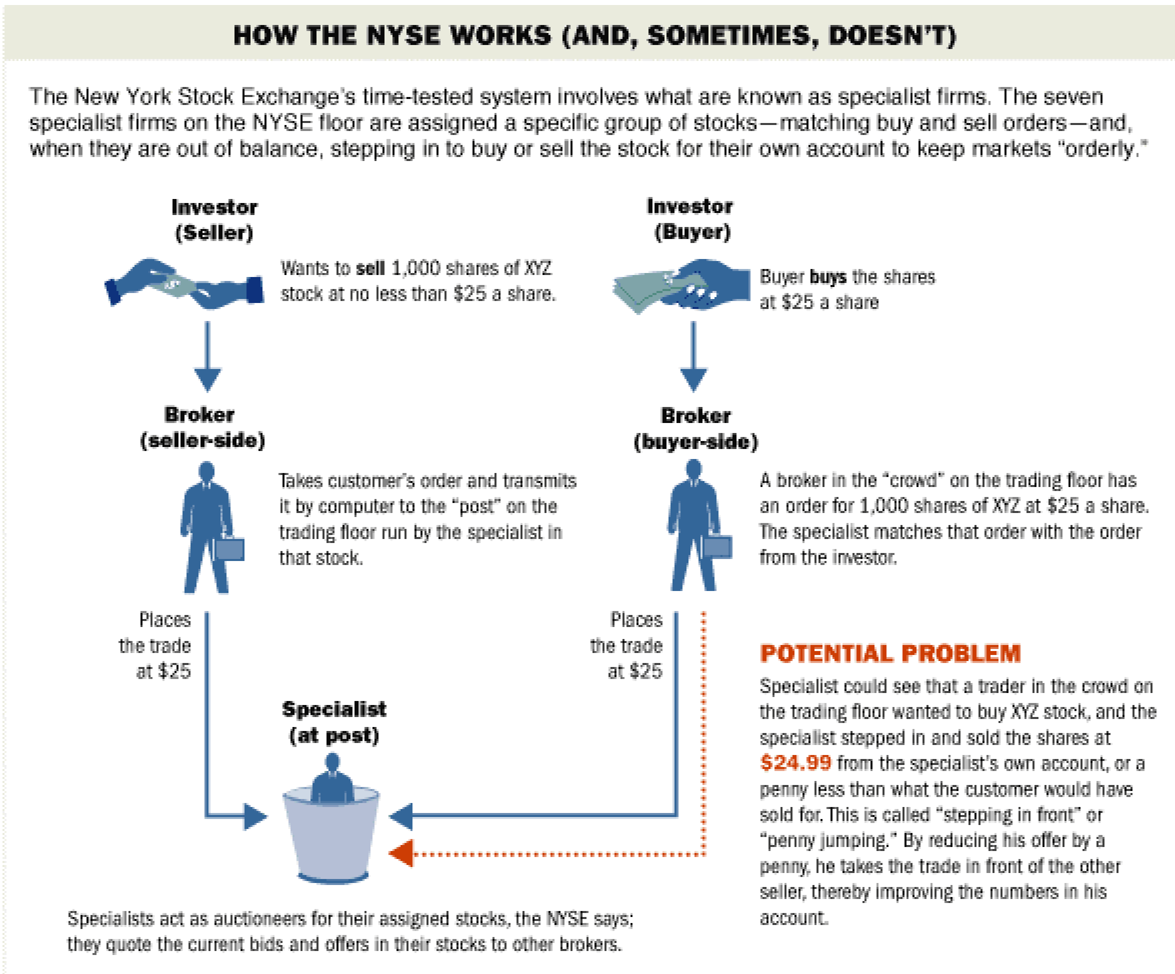
Dealers on the National Association of Security Dealers' Automated Quotations System (NASDAQ) are regulated by the National Association of Security Dealers. (NASD). The following are the requirements in order to function as a market maker on the NASDAQ:

- Dealers seeking to act as a market maker must be registered with the NASD. The registration process must be completed separately for each security.
- For each security in which it is registered, the market maker must be willing to buy and sell that security for its own account on a continuous basis and must enter and maintain two-sided quotations for it.
- The NASD requires a market maker to stand behind its quotations by honoring an order it received for at least a normal trading unit. For example, if the normal trading unit for a particular security is determined to be 1,000 shares, then the market maker must be ready, willing, and able to execute a buy and sell order for at least 1,000 shares at its quoted price.
- Market makers are expected to assure that their quotations are reasonably related to the prevailing market and to report each transaction with 90 seconds.
- Market makers are prohibited from entering quotations into the system that exceed maximum allowable spreads between the bid and ask prices as determined and periodically published by the NASD.
- Market makers are required to commit a certain amount of capital for each security in which they make a market.

[5] The NASDAQ handbook, Probus Publishing Company, 1992, Pages 224-225.

Characteristics of the Auction (Specialist) Market System

The New York Stock Exchange (NYSE) is an example of an auction (specialist) market although it is not a pure auction market. Whenever possible, traders directly interact with each other without the intervention of a specialist. Recently, however, the specialist has come under investigation for stepping between buyers and sellers and profiting from such illegal activities.[6] The chart below presents an example of "penny jumping" whereby a specialist can take advantage of his market making position. [7]



Although the specialist can manipulate the system to his own advantage, approximately 88 percent of total volume occurs without intervention by a specialist. Still, the specialist's job is to manage the process. When insufficient supply or demand exists in a particular stock, the specialist acts as a dealer by

[6] The New York Times, Money and Business, April 27, 2003, Section 3, Page 1.
[7] http://online.wsj.com/article_print/0,,SB105061361377009700,00.html.

buying or selling in order to offset the missing side of the trade. Most studies show that NYSE shares enjoy tighter spreads and lower volatility compared to NASDAQ shares.[8] Each share listed on the NYSE is assigned to a specialist who is responsible for all trading in that stock at his trading post. Floor brokers gather around the post to openly meet for the purpose of finding the best price.

Specialists are members of the Exchange who engage in the buying and selling of one or more specific issues of stock on the floor. The work of a specialist is central to the maintenance of a free, continuous market in the issues in which they act as specialists. Specialists may act as brokers or dealers in transactions.[9] As brokers, they execute orders for the floor traders on a commission basis. As dealers, they act for their own accounts, profits, and risks. Specialists buy for their own accounts when there are insufficient bids and sell from their own accounts when there are insufficient asks. In other words, they maintain markets by purchasing stock at a higher price than anyone else is willing to pay at the time, and by selling stock at a lower price than anyone else is willing to take at the time.

The chief tool of a specialist is his book. The book holds the bids or buy orders and the asks or sell orders of the security in which the specialist makes a market.[10] Orders are divided into market, limit and stop orders and are recorded in the book according to price first, then by the sequence in which received from the floor brokers. Specialists execute orders according to this sequence.

The specialist clearly plays an integral part in ensuring a fair and orderly market. The vital functions of a specialist can be categorized as follows.[11]:[12]

- Acting as Agents: specialists act as agents for the brokers on the floor on the NYSE. This involves handling both the broker's market orders and limit orders. A floor broker may choose to leave an order with a specialist to represent it until it can be executed at a specified price. This frees up floor brokers to concentrate on other orders that require their immediate attention. As an agent, a specialist assumes the same fiduciary responsibility as a broker.
- Acting as Catalysts: specialists serve as the middleman between the buyers and sellers of a particular security. It is the specialist's responsibility to stimulate enough interest in a security so that a market exists. Unique to the agency-auction is the specialist as a conduit of order flow.

[8] "Report of the Committee on Market Making", Indian Stock Exchanges, 1998, www.securities.com/Public/Public98/sebi/SEBI/press/99marketm.html.
[9] Bradley, Edward S. and Teweles, Richard J., The Stock Market (4th Edition), John Wiley & sons, 1982, Page 148.
[10] Ibid, Page 149.
[11] http://money.cnn.com/2001/02/15/deals/bear_stearns/specialists.htm.

The specialist knows who has been interested in a stock, and keeps track of all known interest. As all buyers and sellers aren't always represented in the crowd at the same time, the specialist can call in all interested parties to let them know what has become available in the market. By giving updates to a previously interested party, a specialist helps trades occur where they otherwise might not happen. This is extremely important in cases where the bid and ask prices do not match.

- Acting as Auctioneers: specialists are in charge of organizing the bid and ask prices in such a way that the best prices are made available to the public. In addition, the specialist is responsible for establishing a fair market price at the beginning of each trading day. This opening price is based on the supply and demand of the security.
- Stabilizing Prices: specialists are responsible for maintaining an orderly market in their assigned security. It is up to them to make sure that trading in that particular security moves along smoothly throughout the day, without unreasonable fluctuations in price.
- Providing Capital: if there is an imbalance in the bid and ask orders for a security, the specialist for that security is required to use his own capital to offset that imbalance. Buying or selling against the market trend accomplishes this. As such, a specialist acts as a principal. Although rarely called to do so, this is an important function of a specialist. Most studies show that NYSE shares enjoy tighter spreads and lower volatility compared to NASDAQ shares.[13]
- Managing the Process: specialists manage the auction market in the specific securities allocated to them.[14] Specialist units are private sector companies in corporate or partnership structures. There are 10 firms employing 443 specialists who specialize in more than 2,800 stocks. Specialists must maintain a fair, competitive, orderly and efficient market. This means that all customer orders have an equal opportunity to interact and receive the best price. It also means that once auction trading begins, a customer should be able to buy or sell a reasonable amount of stock close to the last sale. Therefore, a specialist works to avoid large or unreasonable price variations between consecutive sales. The result is that almost 98% of all trades take place at 1/8th point or less from the last sale.

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[12] Schwartz, Robert A., Equity Markets: Structure, Trading and Performance, Harper & Row, Publishers, new York, 1988, page 19.
[13] "Report of the Committee on Market Making", Indian Stock Exchanges, 1998, www.securities.com/Public/Public98/sebi/SEBI/press/99marketm.html.
[14] Ref: NYSE.com.

In repayment of performing these functions, the specialist is amply rewarded. Numerous studies, including Ho/Macris,[15] Leach/Madhavan,[16] and Friedman,[17] have deemed market making to a profitable undertaking. Furthermore, Weber and Krahnen found that profits of market makers are dependent on design. In particular, specialist profits are significantly positive, representing a monopoly rent. In a multi-dealer dealer market, however, market makers frequently realize, on average, net losses from their operations due to competitive undercutting.[18]

Buying and Selling Stock in a Specialist Market

Chart 1 presents a detailed explanation of how a stock is traded on the NYSE. It illustrates how one transaction looks from three different perspectives—the buyer, seller and the stock market professionals who execute the trade.

Chart 1[19]

1. Roger Smith of Des Moines, Iowa, decides to invest in the stock market. ↓	1a. Diane Whitford of Hartford, Connecticut, decides to sell 100 shares of NIKE, Inc. (NKE) stock to help pay for a new car. ↓
2. Roger discusses various investment strategies with an NYSE-member broker and then asks for a quote on NIKE stock. ↓	2a. Diane asks her NYSE-member broker for a quote on NIKE stock. ↓

3. Both brokers obtain quotes on NIKE from the NYSE Trading Floor via an electronic data-market system.

[15] Ho, T and Macris, R. G., “Market Making and the Changing Structure of the Securities Industry”, 1985, in: Krahnen J.P. and Weber, M., “Marketmaking in the Laboratory: Does Competition Matter?”, http://www.ifk-cfs.de/papers/MM_KraWeb29nov2000.PDF.
[16] Leach, J.C. and Madhavan, A.N., “Price experimentation and security market structure, Review of Financial Studies 6, page 375-404.
[17] Friedman, D., “Privileged traders and asset market efficiency: A laboratory study, Journal of Financial and Quantitative Analysis 28, page 515-534: Krahnen J.P. and Weber, M., “Marketmaking in the Laboratory: Does Competition Matter?” http://www.ifk-cfs.de/papers/MM_KraWeb29nov2000.PDF.
[18] Krahnen J.P. and Weber, M., “Marketmaking in the Laboratory: Does Competition Matter?”, 1997, page 3, http://www.ifk-cfs.de/papers/MM_KraWeb29nov2000.PDF.
[19] http://www.nyse.com/floor/102222139021.html.

4. Roger instructs his broker to buy 100 shares of NIKE at the current market price.

4a. Diane instructs her broker to sell 100 shares of NIKE at the current market price.

5. The two brokers send their orders to the Trading Floor using either the Broker Booth Support System (BBSS) or SuperDot.

6. At the post, the specialist who handles NIKE makes sure the transactions are executed fairly and in an orderly manner.

7. The two floor brokers compete with other brokers on the Trading Floor to get the best price for their customers. The brokers representing Roger and Diane agree on a price.

8. After the trades are executed the specialist's workstation send notice to the brokerage firms and the consolidated tape.

9. The transaction is reported by computer and appears within seconds on the consolidated tape displays across the country and around the world.

10. Within three days both Roger and Diane are sent confirmations of their trades from their brokerage firms.

11. Roger settles his account within three business days by submitting payment to his brokerage firm.

11a. Diane's trade is also settled in three business days. Her account will be credited with the proceeds of the sale of stock, minus any applicable commissions.

As the chart above shows, the specialist does not deal directly with the investors, but with brokers on the floor of the NYSE.

The specialist market system utilizes mainly human interaction rather than electronic facilities. Consequently, this human factor has necessitated the NYSE and the SEC to impose certain rules and regulation in order that the Auction system remains fair and transparent. The next section focuses on these rules and regulations.

Rules and Regulations for the Specialist

As will be shown in Chart 2 below, the specialist can be the cause of potential problems if not properly regulated. Over the years the specialist has been the object of a considerable amount of criticism. These criticisms have led to the present-day rules and regulations set forth by the NYSE and the SEC governing the operations of a specialist. Specifically, the SEC, in observing and evaluating the activities of specialists over the years, has arrived at the following conclusions:[20]

- The specialist enjoys a competitive advantage over the general public similar to those of other members on the floor; in addition, by virtue of the great volume of trading in which he participates and by virtue of his exclusive access to the information contained in his book, he enjoys the advantage of special knowledge of the market for securities which he handles.
- The specialist has exceptional opportunities to engage in manipulative activity, by reason of his exclusive information concerning the existence of bids below and offerings above the market. Since the enactment of the Securities Exchange Act of 1934, however, the Commission has little evidence of such manipulative activity by specialists.
- Specialists, during the periods under observation, traded against the daily trend more often than with it, and thus, on the whole, did not tend to accentuate price trends but contributed to the continuity and orderliness of the market. However, it should be noted that, insofar as specialists traded with their books rather than with others, they tended to widen the spread between bid and asked prices and thus to diminish the continuity of the market.
- Studies on specialists' trading patterns have shown more activity in moderately active and inactive stocks in relatively greater proportion than in active stocks.
- In the capacity of broker, the specialist renders a useful service in the execution of limit and stop-loss orders.

The SEC affirms the notion that the specialist market system can contribute to a fair and orderly market if the proper regulations are imposed.

[20] Bradley, Edward S. and Teweles, Richard J., The Stock Market (4th Edition), John Wiley & sons, 1982, Page 154.

SEC Rules and Regulations

Specialists on the NYSE must abide by the rules and regulations of both the Securities Exchange Act and the New York Stock Exchange. Under the Securities Exchange Act, the SEC regulates specialists as follows:[21]

- Maintaining an Orderly Market: The Securities Exchange Act requires that the SEC make such rules and regulations as may be reasonably necessary to permit the specialist to maintain a fair and orderly market. Note that the intention of Congress was to limit the specialist's function to maintaining an orderly market rather than to trading for his own profit.
- Disclosure: A specialist may not disclose the content of his book to any person other than an official of the Exchange, an authorized visitor to the floor, or a specialist who may be acting for such a specialist. The SEC, however, may require disclosure when necessary in the public interest. There is, of course, little doubt that at times a specialist's book contains information that might be very useful to a few speculators. It is not considered disclosure of the book for specialists to state the number of shares involved in the best bid and offer. However, they are not compelled to do so if they believe such action would be inadvisable.
- Discretionary Orders: Specialists may execute only market or limited price orders. In other words, the specialist must be instructed as to the issue, the type of order, the total amount, and whether purchase or sale. There can be no discretion given the specialist in these matters. Rules permit, however, a certain amount of brokerage judgment on such things as whether the specialist should stop stock, bid for, or offer the full amount of the order. And bid at or below or offer at or above the price of the order.
- Manipulation: Any form of manipulation of security prices by a specialist is made unlawful by Sections 9 and 10 of the Act.

New York Stock Exchange Rules and Regulations:[22]

- Registration: Under Rule 103 specialists must register with the Exchange. This permits the Exchange to check on the activities of members acting in this capacity.
- Trading for Orderly Market: Probably the most important rule of the Exchange is Rule 104, which states that no specialist shall buy or sell for his own account, or for one in which he is

[21] Ibid, Page 157.

interested, unless such dealings are necessary to maintain a fair and orderly market. The rule has its purpose the prevention of excessive trading for profits. It seeks to prevent excessive and unreasonable trading for a specialist's own account to the possible advantage of the investing public served by the market.

- Pools and Options: Rule 105 provides that no specialist or his organization or a participant in that organization shall have any direct or indirect interest in any pool dealing or trading in the stock in which the specialist is registered, nor shall these parties directly or indirectly hold, acquire, grant, or have an interest in any option in the stock in which the specialist is registered.
- Quotations for Own Account: A specialist may quote a stock for his own account and not from his book in order to maintain closer prices and incur proper price continuity. The specialist may, however, quote the stock for his own account either when he has no bids or when he has no offers on his book. When he has offers on his book, he may quote the stock, but he may not compete with his book. He may bid and offer for his own account within the bids and offers on his book in order to improve the market. However, he cannot buy at or below the price of any order on his book to buy unless he has executed the orders of his customers at these prices.
- Deals for Own Account: A specialist may deal for his own account only if the transactions are necessary for the market, to render his position adequate for immediate or anticipated needs of the market or to cover a short sale. Except for transactions reasonably necessary to render his position adequate for his needs, he is not permitted to purchase shares at a price above the sale in the same session. He is not permitted, unless necessary to render his position adequate to meet the needs of the market, to purchase all or substantially all the stock offered on the book at a price equal to the last sale when the stock so offered represents all or substantially all the stock offered in the market. The specialist is forbidden to buy for his own account when he has an unexecuted market order to buy; he is also forbidden to sell for his own account when he has an unexecuted market order to sell. He is also forbidden to buy stock for his own account at or below a price at which he has a limited order to buy and forbidden to sell for his own account at or above a price at which he has a limited order to sell.
- Crossing Orders: If a specialist has a buy order for 100 shares at 40 from Customer A and another order to sell at 40 from Customer B, he might cross the orders by selling B's stock to A at 40. This is known as crossing an order. Two rules govern such action. One rule requires that when a specialist has an order to buy and an order to sell the same security, he must first publicly offer the security at the minimum variation higher than his bid. Only if there was no sale will the

[22] Bradley, Edward S. and Teweles, Richard J., The Stock Market (4th Edition), John Wiley & sons, 1982, Page 158.

specialist be able to cross the order. A second rule prevents the specialist from trading for his own account whenever it is possible to cross orders.

- Crossing for Own Account: Crossing for own account refers to a transaction in which the specialist sells his own stock to the book or buys from the book for his own account. There are three restrictions on such activity. First, the specialist must offer the stock at 1/8 higher than his bid before the crossing. Second, the market must justify the price. Third, the broker who originally gave the order to the specialist must accept the trade after proper notification.

In addition to these regulations concerning trading activities of specialists, the Securities Exchange Act of 1934 mandates a minimum capital requirement for the specialist according to the specific security in which he makes a market.[23]

Differences Between a Dealer Market and a Specialist Market

Competition

Dealers on the NASDAQ are mainly large investment companies that make markets in many different securities. The dealer's main function is to be ready to buy and sell shares of stock, in blocks of 100 shares, on a regular and continuous basis at a publicly quoted price.[24] This process requires dealers to maintain inventories in order to buy and sell to their customers, which may be individual investors, brokers and other dealers. Each security listed on the NASDAQ exchange generally has more than one dealer, which spawns competition. In fact, some of NASDAQ's largest companies have more than 60 market makers with 10 being the average number of market makers for every listed stock. On the other hand, specialist market makers on the NYSE enjoy a monopolistic position. Thus, competition is the main difference between a market maker on the NASDAQ and the NYSE.

Location

Another difference between the NASDAQ and the NYSE is physical location. Trading stocks listed on the NYSE can be traced to the floor of the New York Stock Exchange premises on the corner of Wall and Broad. The NASDAQ, however, makes use of modern electronic technology to decentralize its trading location. Currently, some 550 dealer firms make markets in NASDAQ-listed securities.

[23] http://www.law.uc.edu/CCL/34ActRls/rule 11b-1.html.
[24] http://www.sec.gov/answers/mktmaker.htm.

IV. Returns and Risks to Market Making

Returns to Market Making

Market makers derive revenues from two sources: commissions (when acting as a broker) and trading profits on the bid-ask spread (when acting as a dealer). Trading profits require that the dealer know his customers, possess knowledge of order flow, and be skilled at trading. A skilled trader clearly understands the interaction between his actions and prices of the securities in which he deals. The trader must have some basis on which to formulate expectations of uncertain future price movements.

Studies cited above strongly suggest that market making can be a profitable undertaking. These studies, however, have all focused on developed markets where the regulatory environment, accounting databases, and knowledge of the systems are well established. For a market in which little of these factors exist, profits may be more theoretical than realistic.

Risk of Market Making

The major risk a MM incurs is that of carrying an unbalanced inventory, which means a lack of diversification. Portfolio theory states that diversifiable risk is not rewarded in the market. Thus, the MM tries to minimize this risk where possible through inventory control systems.

An additional risk is that of trading with more informed investors. A MM must maintain a high level of knowledge of the company in which he makes a market in order to avoid getting blindsided by more informed traders. MMs must, therefore, heavily invest in highly skillful people who understand the market mechanism. These people must also understand how to use dynamic inventory control procedures that allow quick adjustment to changing market conditions.

V. Summary and Conclusions

The purpose of this paper has been to evaluate whether the SSIC should engage in market making. To address this issue, I presented a review of both an order-driven system, which is currently in use at the Amman Stock Exchange, and a quote-driven (market making) system. The main advantage of the order-driven system is its simplicity: it is a transparent system that requires relatively little regulation. A quote-driven system, whether dealer or specialist is more complex and this complexity would require more regulatory oversight. The major advantage of a quote-driven system is the greater liquidity it would bring to the market. I also reviewed a hybrid system that incorporates characteristics of both the order-driven system and the quote-driven system.

Section III presented in more detail the two market making systems for the purpose of highlighting operational details the Amman Stock Exchange would have to incorporate into its business model that would directly impact those entities engaging in making markets. The main differences between a dealer market and a specialist market are competition and the degree of regulation. A dealer market thrives on competition whereas a specialist does not. Competition in a dealer system would, therefore, act as a regulator to a large degree meaning that a dealer system would not require as much regulation as a specialist system. The conclusion from this analysis is that the system the ASE ultimately adopts will have a major impact on how market makers operate and the role, if any, of the SSIC in that system.

The clear conclusion is that the SSIC or, for that matter, any participating entity would have to meet certain criteria in order to engage in market making. Adherence to strict rules and regulations, development and operation of inventory control systems, and employment of highly skilled personnel who understand the market mechanism are but a few of the criteria. My concern is not that the SSIC could not meet these criteria; in fact, I feel confident that it could. My concern, however, is the amount of resources that the SSIC would have to devote to the endeavor. In the process of developing requisite systems and training its personnel, the SSIC would take a chance of being distracted from it primary purpose of managing the public's money for the benefit of current and future retirees. The risk/return principles of operating a market making business are quite different from the risk/return principles of managing a portfolio.

An additional concern I have is that of the SSIC, a public institution, engaging in and competing with private enterprises. The dealer system requires competition that, presumably, would come from businesses in the private sector such as brokerage firms and banks. Moreover, if the ASE were to opt for a market making system, it would likely select some form of a dealer system due to the heavy responsibilities of creating and enforcing regulations required of the specialist system. But even if the ASE were to adopt either the specialist or hybrid system, it would not be appropriate for the SSIC to act as the sole specialist for every applicable stock due to the magnitude of such an undertaking.

As a result of this analysis, I do not believe that the SSIC should engage in market making. Even though I don't believe that it is appropriate for the SSIC to engage in market making, I do believe that the concept of market making has serious merit and requires further investigation. If the ASE is to grow and mature, market making has a place in making this happen. A properly instituted market making system would lead to reduced transaction costs, speedier execution of trades, and gains in liquidity. Tighter bid-ask spreads, higher volumes, and greater pricing efficiency are ultimate goals. In addition, a successful market making system would lead to more investor activity that, in turn, would lead to a greater infusion of capital into IPOs and secondary issues. Cash-strapped companies in need of growth capital would look more to the equity market as a source of funds to be used for building new plants and purchasing new equipment than they currently are doing. As companies grow, they would employ more human capital, which is a major problem in Jordan at this time. In short, market making is a needed step in the development of Jordan's overall economic system.

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